GenCore version 5.1.6


OM protein - protein search, using sw model

Run on: June 25, 2003, 14:20:41 ; Search time 31.5 Seconds
(without alignments)
444.169 Million cell updates/sec

Title: US-09-622-613B-8
Perfect score: 582
Sequence: 1 MQDWLTFQKKHLTNTRDVDC.....TFCVTCENQAPVHFVGVGHC 105

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 567 | 97.4 | 105 | 20 | AAY28869 | Recombinant Met(-1 |
| 2 | 565 | 97.1 | 105 | 20 | AAY28867 | Recombinant Met(-1 |
| 3 | 562 | 96.6 | 104 | 20 | AAY28866 | Recombinant RaPLR1 |
| 4 | 560 | 96.2 | 104 | 20 | AAY28865 | Rana pipiens liver |
| 5 | 560 | 96.2 | 105 | 20 | AAY28871 | Recombinant Met(-1 |
| 6 | 560 | 96.2 | 127 | 20 | AAY28879 | Rana pipiens Clone |
| 7 | 555 | 95.4 | 104 | 20 | AAY28870 | Recombinant RaPLR1 |
| 8 | 540 | 92.8 | 104 | 18 | AAW06544 | Antitumour protein |
| 9 | 540 | 92.8 | 105 | 18 | AAW35123 | R. pipiens recombi |
| 10 | 540 | 92.8 | 105 | 20 | AAY39400 | Recombinant frog O |
| 11 | 540 | 92.8 | 355 | 18 | AAW35125 | R. pipiens recombi |
| 12 | 540 | 92.8 | 358 | 18 | AAW35130 | R. pipiens recombi |
| 13 | 538 | 92.4 | 104 | 18 | AAW30301 | Recombinant onc pr |
| 14 | 538 | 92.4 | 104 | 22 | AAB31666 | Amino acid sequenc |
| 15 | 538 | 92.4 | 112 | 18 | AAW35118 | R. pipiens recombi |
| 16 | 538 | 92.4 | 251 | 18 | AAW35134 | R. pipiens recombi |
| 17 | 538 | 92.4 | 254 | 18 | AAW35135 | R. pipiens recombi |
| 18 | 538 | 92.4 | 355 | 18 | AAW35129 | R. pipiens recombi |
| 19 | 538 | 92.4 | 355 | 18 | AAW35133 | R. pipiens recombi |
| 20 | 538 | 92.4 | 366 | 18 | AAW35132 | R. pipiens recombi |
| 21 | 538 | 92.4 | 379 | 18 | AAW35126 | R. pipiens recombi |
| 22 | 537 | 92.3 | 104 | 18 | AAW30302 | Recombinant onc pr |
| 23 | 535 | 91.9 | 104 | 12 | AAR12344 | Protein with activ |
| 24 | 535 | 91.9 | 104 | 15 | AAR47303 | ONCONASE (pharmace |
| 25 | 535 | 91.9 | 104 | 17 | AAW00736 | Protein derived fr |
| 26 | 535 | 91.9 | 104 | 18 | AAW06543 | Antitumour protein |
| 27 | 535 | 91.9 | 104 | 18 | AAW14065 | Onconase (RTM) pro |
| 28 | 535 | 91.9 | 104 | 20 | AAY33322 | Frog onconase prot |
| 29 | 535 | 91.9 | 104 | 20 | AAW88233 | Rana pipiens RNase |
| 30 | 535 | 91.9 | 104 | 22 | AAB31667 | Amino acid sequenc |
| 31 | 533 | 91.6 | 105 | 18 | AAW35116 | R. pipiens recombi |
| 32 | 533 | 91.6 | 106 | 18 | AAW35122 | R. pipiens recombi |
| 33 | 533 | 91.6 | 107 | 18 | AAW35117 | R. pipiens recombi |
| 34 | 532 | 91.4 | 105 | 18 | AAW35115 | R. pipiens recombi |
| 35 | 530 | 91.1 | 104 | 18 | AAW18224 | Antitumour generic |
| 36 | 529 | 90.9 | 358 | 18 | AAW35127 | R. pipiens recombi |
| 37 | 529 | 90.9 | 365 | 18 | AAW35131 | R. pipiens recombi |
| 38 | 510 | 87.6 | 107 | 18 | AAW35120 | R. pipiens recombi |
| 39 | 477 | 82.0 | 360 | 18 | AAW35128 | R. pipiens recombi |
| 40 | 465.5 | 80.0 | 111 | 18 | AAW35121 | R. pipiens recombi |
| 41 | 427 | 73.4 | 83 | 18 | AAW35119 | R. pipiens clone R |
| 42 | 427 | 73.4 | 83 | 20 | AAW88234 | Rana pipiens RNase |
| 43 | 274 | 47.1 | 111 | 20 | AAY33321 | Frog lectin protei |
| 44 | 272.5 | 46.8 | 111 | 20 | AAY28876 | Recombinant Met(-1 |
| 45 | 271.5 | 46.6 | 111 | 20 | AAY28873 | Recombinant Met(-1 |

ALIGNMENTS

RESULT 1
AAY28869
ID AAY28869 standard; Protein; 105 AA.
XX
AC AAY28869;
XX
DT 25-JAN-2000 (first entry)
XX
DE Recombinant Met(-1) RaPLR1 Met23Leu-(His)6 protein.
XX
KW Recombinant Met(-1) Rana pipiens ribonuclease Met23Leu-(His)6; RaPLR1;
KW CD22; covalently bound; LL2 antibody; ligand binding moiety; RNase;
KW cancerous B cell; Kaposi's sarcoma; human chorionic gonadotrophin; hCG;
KW signal peptide; recombinant ribonuclease; cytotoxic fusion protein;
KW cancer; frog; autoimmune disease.
XX
OS Rana pipiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /note= "(His)6 histidine tag attached to N-terminal Met"
FT Misc-difference 1
FT /note= "Met not found in wild type RaPLR1"
FT Misc-difference 24
FT /note= "Wild type Met replaced with Leu"
XX
PN WO9950398-A2.
XX
PD 07-OCT-1999.
XX
PF 26-MAR-1999; 99WO-US06641.
XX

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PR   27-MAR-1998;   98US-0079751.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Newton DL,  Rybak SM;
XX
DR   WPI; 1999-610847/52.
DR   N-PSDB; AAZ08127.
XX
PT   New recombinant ribonucleases, used for killing target cells, e.g. for
PT   treating cancers, viral infections or autoimmune diseases -
XX
PS   Claim 4; Page 59; 71pp; English.
XX
CC   The present sequence is a recombinant Rana pipiens ribonuclease protein
CC   (RaPLR1) with Met at position 1 attached to (His)6 tag and Met24Leu.
CC   Carboxy terminal end of recombinant RaPLR1 has a covalently bound ligand
CC   binding moiety, which can be a LL2 antibody directed against CD22 on
CC   cancerous B cells or human chorionic gonadotrophin (hCG) effective
CC   against Kaposi's sarcoma cells. Recombinant ribonucleases can be
CC   expressed in bacteria without an N-terminal methionine due to the
CC   presence of a signal peptide that is cleaved by bacteria. The soluble
CC   expression of ribonuclease allows the proteins to be fused in-frame with
CC   ligand binding moieties to form cytotoxic fusion proteins. They can be
CC   used for treatment of cancer and autoimmune diseases.
XX
SQ   Sequence   105 AA;

  Query Match             97.4%;  Score 567;  DB 20;  Length 105;
  Best Local Similarity   98.1%;  Pred. No. 1.3e-60;
  Matches  103;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

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Db          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | |||||||||||||||||||| ||||||||||||||||||||
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RESULT 2
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ID   AAY28867 standard; Protein; 105 AA.
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AC   AAY28867;
XX
DT   25-JAN-2000  (first entry)
XX
DE   Recombinant Met(-1) RaPLR1.
XX
KW   Recombinant Met(-1) Rana pipiens ribonuclease; RaPLR1; CD22; RNase;
KW   covalently bound; LL2 antibody; ligand binding moiety; cancerous B cell;
KW   Kaposi's sarcoma; human chorionic gonadotrophin; hCG; signal peptide;
KW   recombinant ribonuclease; cytotoxic fusion protein; cancer; frog;
KW   autoimmune disease.
XX
OS   Rana pipiens.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /note= "Met not found in wild type RaPLR1"
XX
PN   WO9950398-A2.
XX
PD   07-OCT-1999.
XX
PF   26-MAR-1999;   99WO-US06641.
XX
PR   27-MAR-1998;   98US-0079751.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Newton DL,  Rybak SM;
XX
DR   WPI; 1999-610847/52.
DR   N-PSDB; AAZ08126.
XX
PT   New recombinant ribonucleases, used for killing target cells, e.g. for
PT   treating cancers, viral infections or autoimmune diseases -
XX
PS   Claim 34; Page 57; 71pp; English.
XX
CC   The present sequence is a recombinant Rana pipiens ribonuclease (RaPLR1)
CC   protein with Met at position 1. Carboxy terminal end of recombinant
CC   RaPLR1 has a covalently bound ligand binding moiety, which can be a LL2
CC   antibody directed against CD22 on cancerous B cells or human chorionic
CC   gonadotrophin (hCG) effective against Kaposi's sarcoma cells. Recombinant
CC   ribonucleases can be expressed in bacteria without an N-terminal
CC   methionine due to the presence of a signal peptide that is cleaved by
CC   bacteria. The soluble expression of ribonuclease allows the proteins to
CC   be fused in-frame with ligand binding moieties to form cytotoxic fusion
CC   proteins. They can be used for treatment of cancer and autoimmune
CC   diseases.
XX
SQ   Sequence   105 AA;

  Query Match             97.1%;  Score 565;  DB 20;  Length 105;
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  Matches  102;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

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Db          1 MQDWLTFQKKHLTNTRDVDCNNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
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Db         61 TSEFYLSDCNVTSRPCKYKLKKSTNTFCVTCENQAPVHFVGVGHC 105


RESULT 3
AAY28866
ID   AAY28866 standard; Protein; 104 AA.
XX
AC   AAY28866;
XX
DT   25-JAN-2000  (first entry)
XX
DE   Recombinant RaPLR1 Met23Leu amino acid sequence.
XX
KW   Recombinant Rana pipiens ribonuclease; RaPLR1 Met23Leu; covalently bound;
KW   LL2 antibody; ligand binding moiety; CD22; cancerous B cell; RNase;
KW   Kaposi's sarcoma; human chorionic gonadotrophin; hCG; signal peptide;
KW   recombinant ribonuclease; cytotoxic fusion protein; cancer; frog;
KW   autoimmune disease.
XX
OS   Rana pipiens.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 23
FT                   /note= "Wild type Met replaced with Leu"
XX
PN   WO9950398-A2.
XX
PD   07-OCT-1999.
XX
PF   26-MAR-1999;   99WO-US06641.
XX
PR   27-MAR-1998;   98US-0079751.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Newton DL,  Rybak SM;
XX
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DR WPI; 1999-610847/52.
DR N-PSDB; AAZ08125.
XX
PT New recombinant ribonucleases, used for killing target cells, e.g. for
PT treating cancers, viral infections or autoimmune diseases -
XX
PS Claim 34; Page 56; 71pp; English.
XX
CC The present sequence is a recombinant Rana pipiens ribonuclease (RaPLR1)
CC protein with Met23Leu. Carboxy terminal end of recombinant RaPLR1 has a
CC covalently bound ligand binding moiety, which can be a LL2 antibody
CC directed against CD22 on cancerous B cells or human chorionic
CC gonadotrophin (hCG) effective against Kaposi's sarcoma cells. Recombinant
CC ribonucleases can be expressed in bacteria without an N-terminal
CC methionine due to the presence of a signal peptide that is cleaved by
CC bacteria. The soluble expression of ribonuclease allows the proteins to
CC be fused in-frame with ligand binding moieties to form cytotoxic fusion
CC proteins. They can be used for treatment of cancer and autoimmune
CC diseases.
XX
SQ Sequence 104 AA;

Query Match 96.6%; Score 562; DB 20; Length 104;
Best Local Similarity 98.1%; Pred. No. 5.1e-60;
Matches 102; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

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Db 61 SEFYLSDCNVTSRPCKYKLKKSTNTFCVTCENQAPVHFVGVGHC 104

RESULT 4
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ID AAY28865 standard; Protein; 104 AA.
XX
AC AAY28865;
XX
DT 25-JAN-2000 (first entry)
XX
DE Rana pipiens liver ribonuclease (RaPLR1).
XX
KW Rana pipiens liver ribonuclease; RaPLR1; covalently bound; LL2 antibody;
KW ligand binding moiety; CD22; cancerous B cell; Kaposi's Sarcoma; frog;
KW human chorionic gonadotrophin; hCG; recombinant ribonuclease; RNase;
KW signal peptide; cytotoxic fusion protein; cancer; autoimmune disease.
XX
OS Rana pipiens.
XX
PN WO9950398-A2.
XX
PD 07-OCT-1999.
XX
PF 26-MAR-1999; 99WO-US06641.
XX
PR 27-MAR-1998; 98US-0079751.
XX
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Newton DL, Rybak SM;
XX
DR WPI; 1999-610847/52.
DR N-PSDB; AAZ08124.
XX
PT New recombinant ribonucleases, used for killing target cells, e.g. for
PT treating cancers, viral infections or autoimmune diseases -
XX
PS Claim 1; Page 55; 71pp; English.
XX
CC The present sequence is Rana pipiens liver ribonuclease (RaPLR1)
CC protein. Carboxy terminal end of RaPLR1 has a covalently bound
CC ligand binding moiety, which can be a LL2 antibody directed against
CC CD22 on cancerous B cells or human chorionic gonadotrophin (hCG)
CC effective against Kaposi's Sarcoma cells. Recombinant ribonucleases can
CC be expressed in bacteria without an N-terminal methionine due to the
CC presence of a signal peptide that is cleaved by bacteria. The soluble
CC expression of ribonuclease allows the proteins to be fused in-frame with
CC ligand binding moieties to form cytotoxic fusion proteins. They can be
CC used for treatment of cancer and autoimmune diseases.
XX
SQ Sequence 104 AA;

Query Match 96.2%; Score 560; DB 20; Length 104;
Best Local Similarity 97.1%; Pred. No. 8.8e-60;
Matches 101; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

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Db 61 SEFYLSDCNVTSRPCKYKLKKSTNTFCVTCENQAPVHFVGVGHC 104

RESULT 5
AAY28871
ID AAY28871 standard; Protein; 105 AA.
XX
AC AAY28871;
XX
DT 25-JAN-2000 (first entry)
XX
DE Recombinant Met(-1) RaPLR1 Gln1Ser amino acid sequence.
XX
KW Recombinant Met(-1) Rana pipiens ribonuclease Gln1Ser; RaPLR1; CD22;
KW covalently bound; LL2 antibody; ligand binding moiety; cancerous B cell;
KW Kaposi's sarcoma; human chorionic gonadotrophin; hCG; signal peptide;
KW recombinant ribonuclease; cytotoxic fusion protein; cancer; frog;
KW autoimmune disease; RNase.
XX
OS Rana pipiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /note= "Met not found in wild type RaPLR1"
FT Misc-difference 2
FT /note= "Wild type Gln replaced with Ser"
XX
PN WO9950398-A2.
XX
PD 07-OCT-1999.
XX
PF 26-MAR-1999; 99WO-US06641.
XX
PR 27-MAR-1998; 98US-0079751.
XX
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Newton DL, Rybak SM;
XX
DR WPI; 1999-610847/52.
DR N-PSDB; AAZ08129.
XX
PT New recombinant ribonucleases, used for killing target cells, e.g. for
PT treating cancers, viral infections or autoimmune diseases -
XX
PS Claim 34; Page 61; 71pp; English.
XX
CC The present sequence is a recombinant Rana pipiens ribonuclease (RaPLR1)
CC protein with Met at position 1 and Gln2Ser. Carboxy terminal end of
CC recombinant RaPLR1 has a covalently bound ligand binding moiety, which

```
CC   can be a LL2 antibody directed against CD22 on cancerous B cells or human
CC   chorionic gonadotrophin (hCG) effective against Kaposi's sarcoma cells.
CC   Recombinant ribonucleases can be expressed in bacteria without an N-
CC   terminal methionine due to the presence of a signal peptide that is
CC   cleaved by bacteria. The soluble expression of ribonuclease allows the
CC   proteins to be fused in-frame with ligand binding moieties to form
CC   cytotoxic fusion proteins. They can be used for treatment of cancer and
CC   autoimmune diseases.
XX
SQ   Sequence   105 AA;

  Query Match             96.2%;  Score 560;  DB 20;  Length 105;
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Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | ||||||||||||||||||| ||||||||||||||||||||
Db         61 TSEFYLSDCNVTSRPCKYKLKKSTNTFCVTCENQAPVHFVGVGHC 105


RESULT 6
AAY28879
ID   AAY28879 standard; Protein; 127 AA.
XX
AC   AAY28879;
XX
DT   25-JAN-2000  (first entry)
XX
DE   Rana pipiens Clone 5a1b ribonuclease.
XX
KW   Rana pipiens ribonuclease Clone 5a1b; RaPLR1; covalently bound; RNase;
KW   LL2 antibody; ligand binding moiety; CD22; cancerous B cell; onconase;
KW   Kaposi's Sarcoma; human chorionic gonadotrophin; hCG; cancer;
KW   recombinant ribonuclease; frog; signal peptide; cytotoxic fusion protein;
KW   autoimmune disease.
XX
OS   Rana pipiens.
XX
FH   Key             Location/Qualifiers
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FT                   /label= Signal_peptide
FT                   /note= "Putative"
FT   Protein         24..127
FT                   /label= Rana_pipiens_Clone_5a1b_ribonuclease
XX
PN   WO9950398-A2.
XX
PD   07-OCT-1999.
XX
PF   26-MAR-1999;   99WO-US06641.
XX
PR   27-MAR-1998;   98US-0079751.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Newton DL,  Rybak SM;
XX
DR   WPI; 1999-610847/52.
DR   N-PSDB; AAZ08136.
XX
PT   New recombinant ribonucleases, used for killing target cells, e.g. for
PT   treating cancers, viral infections or autoimmune diseases  -
XX
PS   Disclosure; Page 69; 71pp; English.
XX
CC   The present sequence is a Rana pipiens Clone 5a1b ribonuclease (RaPLR1).
CC   It is encoded by Clone 5a1b cDNA obtained from Rana pipiens liver mRNA
CC   library. It exhibits differences with Onconase (RTM) at amino acid
CC   residues 11, 20, 85 and 103. Carboxy terminal end of RaPLR1 has a
CC   covalently bound ligand binding moiety, which can be a LL2 antibody
CC   directed against CD22 on cancerous B cells or human chorionic
CC   gonadotrophin (hCG) effective against Kaposi's Sarcoma cells. Recombinant
CC   ribonucleases can be expressed in bacteria without an N-terminal
CC   methionine due to the presence of a signal peptide that is cleaved by
CC   bacteria. The soluble expression of ribonuclease allows the proteins to
CC   be fused in-frame with ligand binding moieties to form cytotoxic fusion
CC   proteins. They can be used for treatment of cancer and autoimmune
CC   diseases.
XX
SQ   Sequence   127 AA;

  Query Match             96.2%;  Score 560;  DB 20;  Length 127;
  Best Local Similarity   97.1%;  Pred. No. 1.1e-59;
  Matches  101;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          2 QDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 61
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Qy         62 FEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
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RESULT 7
AAY28870
ID   AAY28870 standard; Protein; 104 AA.
XX
AC   AAY28870;
XX
DT   25-JAN-2000  (first entry)
XX
DE   Recombinant RaPLR1 Gln1Ser amino acid sequence.
XX
KW   Recombinant Rana pipiens ribonuclease; RaPLR1 Gln1Ser; covalently bound;
KW   LL2 antibody; ligand binding moiety; CD22; cancerous B cell; frog;
KW   Kaposi's sarcoma; human chorionic gonadotrophin; hCG; signal peptide;
KW   recombinant ribonuclease; cytotoxic fusion protein; cancer; RNase;
KW   autoimmune disease.
XX
OS   Rana pipiens.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /note= "Wild type Gln replaced with Ser"
XX
PN   WO9950398-A2.
XX
PD   07-OCT-1999.
XX
PF   26-MAR-1999;   99WO-US06641.
XX
PR   27-MAR-1998;   98US-0079751.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Newton DL,  Rybak SM;
XX
DR   WPI; 1999-610847/52.
DR   N-PSDB; AAZ08128.
XX
PT   New recombinant ribonucleases, used for killing target cells, e.g. for
PT   treating cancers, viral infections or autoimmune diseases  -
XX
PS   Claim 34; Page 60; 71pp; English.
XX
CC   The present sequence is a recombinant Rana pipiens ribonuclease (RaPLR1)
CC   protein with Gln1Ser. Carboxy terminal end of recombinant RaPLR1 has a
CC   covalently bound ligand binding moiety, which can be a LL2 antibody
CC   directed against CD22 on cancerous B cells or human chorionic
CC   gonadotrophin (hCG) effective against Kaposi's sarcoma cells. Recombinant
```

```
CC   ribonucleases can be expressed in bacteria without an N-terminal
CC   methionine due to the presence of a signal peptide that is cleaved by
CC   bacteria. The soluble expression of ribonuclease allows the proteins to
CC   be fused in-frame with ligand binding moieties to form cytotoxic fusion
CC   proteins. They can be used for treatment of cancer and autoimmune
CC   diseases.
XX
SQ   Sequence   104 AA;

  Query Match           95.4%;  Score 555;  DB 20;  Length 104;
  Best Local Similarity  97.1%;  Pred. No. 3.5e-59;
  Matches  100;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          3 DWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTTF 62
              ||||||||||||||||||||||:||||||||||||||||||||||||||||||||||||
Db          2 DWLTFQKKHLTNTRDVDCNNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTTS 61

Qy         63 EFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              ||||||||||||||||||||| ||||||||||||||||||||
Db         62 EFYLSDCNVTSRPCKYKLKKSTNTFCVTCENQAPVHFVGVGHC 104


RESULT 8
AAW06544
ID   AAW06544 standard; protein; 104 AA.
XX
AC   AAW06544;
XX
DT   22-AUG-1997  (first entry)
XX
DE   Antitumour protein from Rana pipiens oocytes.
XX
KW   Tumour; chemotherapy; radiotherapy; frog.
XX
OS   Rana pipiens.
XX
PN   WO9639428-A1.
XX
PD   12-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08304.
XX
PR   06-JUN-1995;   95US-0467955.
XX
PA   (ALFA-) ALFACELL CORP.
XX
PI   Ardelt WJ;
XX
DR   WPI; 1997-043063/04.
XX
PT   Antitumour proteins from Rana pipiens oocyte(s) - have fewer
PT   disadvantages than chemotherapy, surgery and radiotherapy
XX
PS   Claim 8; Page 28; 45pp; English.
XX
CC   The present sequence is a specifically claimed example of an
CC   antitumour protein from the generic protein in AAW18224, with the
CC   molecular weight 12000. This is one of two preferred proteins (the
CC   other in AAW06543) that have been isolated from Rana pipiens oocytes.
CC   Both proteins have a blocked amino terminal group and are essentially
CC   free of carbohydrates. The proteins are used to treat tumours. Use of
CC   the peptides has fewer disadvantages than chemotherapy, radiotherapy
CC   and surgery in the treatment of tumours.
XX
SQ   Sequence   104 AA;

  Query Match           92.8%;  Score 540;  DB 18;  Length 104;
  Best Local Similarity  93.3%;  Pred. No. 2.3e-57;
  Matches   97;  Conservative    3;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          2 QDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 61
              :||||||||:|||||||||||:||||||||||||||||||||||||||||||||||||
Db          1 EDWLTFQKKHVTNTRDVDCNNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 60

Qy         62 FEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              |||||||||||||||||||||  |||||||||||||||| |
Db         61 SEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGRC 104


RESULT 9
AAW35123
ID   AAW35123 standard; Protein; 105 AA.
XX
AC   AAW35123;
XX
DT   20-APR-1998  (first entry)
XX
DE   R. pipiens recombinant RNase protein [Met-(-1)]rOnc.
XX
KW   RNase A; ribonuclease; cytotoxic; onconase; nOnc; immunofusion;
KW   tumour cell growth; frog.
XX
OS   Rana pipiens.
XX
PN   WO9731116-A2.
XX
PD   28-AUG-1997.
XX
PF   19-FEB-1997;   97WO-US02588.
XX
PR   21-FEB-1996;   96US-0011800.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Boque L,  Newton DL,  Rybak SM,  Wlodawer A;
XX
DR   WPI; 1997-435168/40.
DR   N-PSDB; AAT94959.
XX
PT   Ribonuclease molecules based on native Onconase - used for killing
PT   cells, particularly tumour cells
XX
PS   Disclosure; Pages 65-66; 90pp; English.
XX
CC   AAW35115 to AAW35123 encode recombinant proteins (rOnc) which are
CC   modifications of the RNase Onconase (RTM) (nOnc). Such novel
CC   ribonuclease molecules are highly cytotoxic and can be used alone or to
CC   form chemical conjugates or to target recombinant immunofusions. They are
CC   used particularly for decreasing tumour cell growth. They can also be
CC   used for cell separation in vitro by selectively killing unwanted types
CC   of cells, e.g. in bone marrow prior to transplantation into a patient
CC   undergoing marrow ablation by radiation, or for killing leukaemia cells
CC   or T-cells that would cause graft versus host disease. The toxins can
CC   also be used to selectively kill unwanted cells in culture. The new
CC   ribonucleases have increased cytotoxic activity compared to nOnc and also
CC   lower immunogenicity in humans.
XX
SQ   Sequence   105 AA;

  Query Match           92.8%;  Score 540;  DB 18;  Length 105;
  Best Local Similarity  92.4%;  Pred. No. 2.3e-57;
  Matches   97;  Conservative    4;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60
              |:|||||||:|||||||:||:||||||||||||||||||||||||||||||||||||
Db          1 MEDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | ||||||||||||||||||||  |||||||||||||||| |
Db         61 TSEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 105


RESULT 10
AAY39400
ID   AAY39400 standard; Protein; 105 AA.
XX
```

```
AC   AAY39400;
XX
DT   01-DEC-1999  (first entry)
XX
DE   Recombinant frog Onconase.
XX
KW   Ribonuclease; protein synthesis; inhibition; cancer; cytotoxic.
XX
OS   Rana pipiens.
XX
PN   WO9946389-A1.
XX
PD   16-SEP-1999.
XX
PF   11-MAR-1999;   99WO-US04252.
XX
PR   11-MAR-1998;   98US-0077557.
XX
PA   (IMMU-) IMMUNOMEDICS INC.
XX
PI   Goldenberg DM,  Hansen H,  Leung S;
XX
DR   WPI; 1999-551416/46.
DR   N-PSDB; AAZ19767.
XX
PT   A new recombinant Onconase used to treat, e.g. colon cancer -
XX
PS   Example 1; Fig 1; 42pp; English.
XX
CC   This sequence represents recombinant frog Onconase. Onconase has
CC   ribonuclease and anti-tumour activity. The cDNA was produced via PCR
CC   (using primers AAZ19768-Z19769) of two synthetic DNAs whose sequences
CC   encoded most of the N-terminal or the C-terminal amino acids of mature
CC   Onconase. The two PCR products generated encoded either the N-terminal
CC   54 amino acids (minus the initial methionine) or the C-terminal 51 amino
CC   acids, and  were ligated in frame at an NruI site. The cDNA was then
CC   subcloned into a vector e.g., pBluescript, where the ATG initiation
CC   codon was ligated to the cDNA. After expression in E. coli, the
CC   recombinant protein was purified. The initial N-formyl methionine was
CC   cleaved off and the now N-terminal glutamate residue cyclised to form an
CC   N-terminal pyroglutamate. The pyroglutamate residue forms part of the
CC   phosphate binding pocket of Onconaseand is essential for both
CC   ribonuclease and anti-tumour activity. Onconase is a 12 kD ribonuclease
CC   which causes cell death as a result of potent inhibition of protein
CC   synthesis by a mechanism involving inactivation of cellular RNA. It is
CC   not inhibited by mammalian placental ribonuclease inhibitor, which may
CC   explain its enhanced cytotoxicity relative to mammalian enzymes. It has
CC   anti-tumour activity against a variety of solid tumours e.g, colon or
CC   pancreatic cancers, and can be used alone or in combination with other
CC   anti-cancer agents such as tamoxifen. When used as an anti-tumour agent,
CC   Onconase can be conjugated to a marker which targets it to a specific
CC   cell type.
XX
SQ   Sequence   105 AA;

  Query Match             92.8%;  Score 540;  DB 20;  Length 105;
  Best Local Similarity   92.4%;  Pred. No. 2.3e-57;
  Matches   97;  Conservative    4;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60
              ||||||||||:|||:||||:||:||||||||||||||||||||||||||||||||||||
Db          1 MQDWLTFQKKHITNTKDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | ||||||||||||||||||||  |||||||||||||||| |
Db         61 TSEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 105


RESULT 11
AAW35125
ID   AAW35125 standard; Protein; 355 AA.
XX
AC   AAW35125;
XX
DT   20-APR-1998  (first entry)
XX
DE   R. pipiens recombinant RNase rOnc fusion protein 1.
XX
KW   RNase A; ribonuclease; cytotoxic; onconase; nOnc; immunofusion;
KW   tumour cell growth; frog.
XX
OS   Rana pipiens.
OS   Synthetic.
XX
PN   WO9731116-A2.
XX
PD   28-AUG-1997.
XX
PF   19-FEB-1997;   97WO-US02588.
XX
PR   21-FEB-1996;   96US-0011800.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Boque L,  Newton DL,  Rybak SM,  Wlodawer A;
XX
DR   WPI; 1997-435168/40.
DR   N-PSDB; AAT94963.
XX
PT   Ribonuclease molecules based on native Onconase - used for killing
PT   cells, particularly tumour cells
XX
PS   Disclosure; Page 67; 90pp; English.
XX
CC   Sequences AAW35125 to AAW35135 represent recombinant fusion proteins
CC   (rOnc) which are modifications of the RNase Onconase (RTM) (nOnc). Such
CC   novel ribonuclease molecules are highly cytotoxic and can be used alone
CC   or to form chemical conjugates or to target recombinant immunofusions.
CC   They are used particularly for decreasing tumour cell growth. They can
CC   also be used for cell separation in vitro by selectively killing unwanted
CC   types of cells, e.g. in bone marrow prior to transplantation into a
CC   patient undergoing marrow ablation by radiation, or for killing leukaemia
CC   cells or T-cells that would cause graft versus host disease. The toxins
CC   can also be used to selectively kill unwanted cells in culture. The new
CC   ribonucleases have increased cytotoxic activity compared to nOnc and
CC   also lower immunogenicity in humans.
XX
SQ   Sequence   355 AA;

  Query Match             92.8%;  Score 540;  DB 18;  Length 355;
  Best Local Similarity   92.4%;  Pred. No. 1.1e-56;
  Matches   97;  Conservative    4;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60
              |:|||||||||:||||||||:||:||||||||||||||||||||||||||||||||||||
Db        251 MEDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 310

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | ||||||||||||||||||||  |||||||||||||||| |
Db        311 TSEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 355


RESULT 12
AAW35130
ID   AAW35130 standard; Protein; 358 AA.
XX
AC   AAW35130;
XX
DT   20-APR-1998  (first entry)
XX
DE   R. pipiens recombinant RNase rOnc fusion protein 6.
XX
KW   RNase A; ribonuclease; cytotoxic; onconase; nOnc; immunofusion;
KW   tumour cell growth; frog.
XX
OS   Rana pipiens.
```

OS Synthetic.
XX
PN WO9731116-A2.
XX
PD 28-AUG-1997.
XX
PF 19-FEB-1997; 97WO-US02588.
XX
PR 21-FEB-1996; 96US-0011800.
XX
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Boque L, Newton DL, Rybak SM, Wlodawer A;
XX
DR WPI; 1997-435168/40.
DR N-PSDB; AAT94968.
XX
PT Ribonuclease molecules based on native Onconase - used for killing
PT cells, particularly tumour cells
XX
PS Disclosure; Page 72; 90pp; English.
XX
CC Sequences AAW35125 to AAW35135 represent recombinant fusion proteins
CC (rOnc) which are modifications of the RNase Onconase (RTM) (nOnc). Such
CC novel ribonuclease molecules are highly cytotoxic and can be used alone
CC or to form chemical conjugates or to target recombinant immunofusions.
CC They are used particularly for decreasing tumour cell growth. They can
CC also be used for cell separation in vitro by selectively killing unwanted
CC types of cells, e.g. in bone marrow prior to transplantation into a
CC patient undergoing marrow ablation by radiation, or for killing leukaemia
CC cells or T-cells that would cause graft versus host disease. The toxins
CC can also be used to selectively kill unwanted cells in culture. The new
CC ribonucleases have increased cytotoxic activity compared to nOnc and
CC also lower immunogenicity in humans.
XX
SQ Sequence 358 AA;

Query Match 92.8%; Score 540; DB 18; Length 358;
Best Local Similarity 92.4%; Pred. No. 1.1e-56;
Matches 97; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

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Qy          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60
              |:|||||||||:|||||||:||:|||||||||||||||||||||||||||||||||||||
Db          1 MEDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | |||||||||||||||||||  |||||||||||||||| |
Db         61 TSEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 105
```

RESULT 13
AAW30301
ID AAW30301 standard; protein; 104 AA.
XX
AC AAW30301;
XX
DT 09-JUN-1998 (first entry)
XX
DE Recombinant onc protein.
XX
KW Onc; oncanase; ribonuclease; frog; antitumour; pancreatic cancer;
KW human immunodeficiency virus type-1; HIV1; replication.
XX
OS Rana pipiens.
XX
PN WO9738112-A1.
XX
PD 16-OCT-1997.
XX
PF 04-APR-1997; 97WO-US05675.
XX
PR 04-APR-1996; 96US-0626288.
XX
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Ardelt W, Boix E, Vasandani VM, Wu YN, Youle RJ;
XX
DR WPI; 1997-512725/47.
XX
PT Recombinant Onc protein with glutamine residue at position 1 -
PT useful as antitumour and antiviral agent, also as cell culture
PT selection agent
XX
PS Claim 1; Page 28; 35pp; English.
XX
CC This sequence represents a recombinant Onc protein comprising a 104 amino
CC acid sequence having Gln at position 1. Onc, a ribonuclease from Rana
CC pipiens oocytes, is known as an antitumour agent (e.g. for treating
CC pancreatic cancer) and inhibitor of human immunodeficiency virus type-1
CC replication. It can be used therapeutically or as a cell-culture
CC selection agent, e.g. to identify gene therapy compositions able to
CC inhibit tumour growth.
XX
SQ Sequence 104 AA;

Query Match 92.4%; Score 538; DB 18; Length 104;
Best Local Similarity 93.3%; Pred. No. 4e-57;
Matches 97; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

```
Qy          2 QDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 61
              ||||||||||:||||||||:||:|||||||||||||||||||||||||||||||||||||
Db          1 QDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 60

Qy         62 FEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              |||||||||||||||||||  |||||||||||||||| |
Db         61 SEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 104
```

RESULT 14
AAB31666
ID AAB31666 standard; protein; 104 AA.
XX
AC AAB31666;
XX
DT 30-APR-2001 (first entry)
XX
DE Amino acid sequence of a frog ribonuclease protein.
XX
KW Frog; ribonuclease; ranpirnase; RNase.
XX
OS Rana pipiens.
XX
FH Key Location/Qualifiers
FT Modified-site 1
FT /note= "this Gln is autocyclised to pyroglutamic acid"
XX
PN US6175003-B1.
XX
PD 16-JAN-2001.
XX
PF 10-SEP-1999; 99US-0394268.
XX
PR 10-SEP-1999; 99US-0394268.
XX
PA (ALFA-) ALFACELL CORP.
XX
PI Saxena SK;
XX
DR WPI; 2001-167808/17.
XX
PT New nucleic acids encoding a ribonuclease (Rnase), useful for the
PT precise targeting of Rnase to a predetermined cell receptor
XX
PS Claim 1; Columns 5-6; 7pp; English.
XX
CC The present sequence represents a frog ribonuclease protein (ranpirnase)

```
CC   (RNase). The specification describes a synthetic ribonuclease protein,
CC   in which the addition of cysteine in the ribonuclease facilitates the
CC   chemical linking of a targeting molecule by the single reactive
CC   sulfhydryl group. The specification also describes a method for the
CC   production of ranpirnase using DNA technology instead of processing
CC   biological material. The re-engineering of the protein molecule allows
CC   easier attachment to a targeting molecule thereby making it possible for
CC   the ribonuclease to be delivered to a particular cell receptor where it
CC   might be most effective.
XX
SQ   Sequence   104 AA;

  Query Match             92.4%;  Score 538;  DB 22;  Length 104;
  Best Local Similarity   93.3%;  Pred. No. 4e-57;
  Matches   97;  Conservative    3;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          2 QDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 61
              |||||||||:||||||||:||:||||||||||||||||||||||||||||||||||||
Db          1 QDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLTT 60

Qy         62 FEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              |||||||||||||||||||||  |||||||||||||||| |
Db         61 SEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 104


RESULT 15
AAW35118
ID   AAW35118 standard; Protein; 112 AA.
XX
AC   AAW35118;
XX
DT   20-APR-1998  (first entry)
XX
DE   R. pipiens recombinant RNase protein NLSMetSerrOnc.
XX
KW   RNase A; ribonuclease; cytotoxic; onconase; nOnc; immunofusion;
KW   tumour cell growth; frog.
XX
OS   Rana pipiens.
XX
PN   WO9731116-A2.
XX
PD   28-AUG-1997.
XX
PF   19-FEB-1997;   97WO-US02588.
XX
PR   21-FEB-1996;   96US-0011800.
XX
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Boque L,  Newton DL,  Rybak SM,  Wlodawer A;
XX
DR   WPI; 1997-435168/40.
DR   N-PSDB; AAT94955.
XX
PT   Ribonuclease molecules based on native Onconase - used for killing
PT   cells, particularly tumour cells
XX
PS   Claim 18; Page 63; 90pp; English.
XX
CC   AAW35115 to AAW35123 encode recombinant proteins (rOnc) which are
CC   modifications of the RNase Onconase (RTM) (nOnc). Such novel
CC   ribonuclease molecules are highly cytotoxic and can be used alone or to
CC   form chemical conjugates or to target recombinant immunofusions. They are
CC   used particularly for decreasing tumour cell growth. They can also be
CC   used for cell separation in vitro by selectively killing unwanted types
CC   of cells, e.g. in bone marrow prior to transplantation into a patient
CC   undergoing marrow ablation by radiation, or for killing leukaemia cells
CC   or T-cells that would cause graft versus host disease. The toxins can
CC   also be used to selectively kill unwanted cells in culture. The new
CC   ribonucleases have increased cytotoxic activity compared to nOnc and also
CC   lower immunogenicity in humans.
XX
SQ   Sequence   112 AA;

  Query Match             92.4%;  Score 538;  DB 18;  Length 112;
  Best Local Similarity   92.4%;  Pred. No. 4.4e-57;
  Matches   97;  Conservative    3;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 MQDWLTFQKKHLTNTRDVDCNNILSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 60
              | |||||||||:||||||||:||:||||||||||||||||||||||||||||||||||||
Db          8 MSDWLTFQKKHITNTRDVDCDNIMSTNLFHCKDKNTFIYSRPEPVKAICKGIIASKNVLT 67

Qy         61 TFEFYLSDCNVTSRPCKYKLKKSTITFCVTCENQAPVHFVGVGHC 105
              | ||||||||||||||||||||  |||||||||||||||| |
Db         68 TSEFYLSDCNVTSRPCKYKLKKSTNKFCVTCENQAPVHFVGVGSC 112


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Job time : 31.5 secs
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